

**CLAIMS**

1. A nasal delivery device for delivering substance to a nasal airway of a subject, comprising:  
5 first and second nosepiece units, each including a nosepiece for fitting to respective nostrils of a subject;  
at least one substance supply unit for supplying substance for delivery to the nasal airway of the subject; and  
a valve unit for selectively fluidly connecting the at least one substance supply  
10 unit alternately to respective ones of the nosepiece units.
2. The delivery device of claim 1, further comprising:  
a mouthpiece through which the subject in use exhales.
- 15 3. The delivery device of claim 1 or 2, further comprising:  
a gas supply channel for supplying a gas flow for entraining substance supplied by the at least one substance supply unit.
4. The delivery device of claim 3 when appendant upon claim 2, wherein the  
20 mouthpiece is fluidly connected to the gas supply channel, whereby the gas flow is an air flow developed by an exhalation breath of the subject.
5. The delivery device of claim 3, further comprising:  
a gas supply unit which is fluidly connected to the gas supply channel for  
25 delivering a gas flow through the gas supply channel.
6. The delivery device of claim 5 when appendant upon claim 2, wherein the gas  
supply unit is an exhalation breath actuatable unit which is fluidly connected to the mouthpiece such as to be actuated on exhalation by the subject.
- 30 7. The delivery device of any of claims 3 to 6, wherein the valve unit is configured alternately fluidly to connect one of the nosepiece units to the at least one substance supply unit and vent the other of the nosepiece units, such that, where

the gas flow is at a driving pressure which is such as to cause the gas flow to flow around the posterior margin of the nasal septum and through the nasal airway, the gas flow delivered through the one nosepiece unit is vented through the other nosepiece unit.

5

8. The delivery device of claim 7, further comprising:  
at least one flow resistor to which the other nosepiece unit is vented.

9. The delivery device of claim 8, wherein the flow resistor has a fixed flow  
10 resistance for providing a fixed flow resistance to the gas flow.

10. The delivery device of claim 8, wherein the flow resistor is a progressive resistor  
for progressively providing an increasing flow resistance to the gas flow.

- 15 11. The delivery device of claim 10, wherein the progressive resistor comprises an  
expandable member which provides a progressively increasing resistance to the  
gas flow.

12. The delivery device of any of claims 1 to 11, further comprising:  
20 a control unit for controlling the valve unit such as to provide for alternate  
delivery of substance through respective ones of the first and second nosepiece  
units.

13. The delivery device of any of claims 1 to 12, comprising:  
25 a single substance supply unit for supplying substance for delivery alternately to  
respective ones of the first and second nosepiece units.

14. The delivery device of any of claims 1 to 12, comprising:  
first and second substance supply units for supplying substance for delivery to  
30 respective ones of the first and second nosepiece units.

15. The delivery device of any of claims 1 to 14, wherein the valve unit comprises first and second valves, each being fluidly connected to a respective one of the first and second nosepiece units.
- 5 16. A method of delivering substance to a nasal airway of a subject, comprising the steps of:  
fitting first and second nosepiece units to respective nostrils of a subject; and  
delivering substance alternately through respective ones of the nosepiece units.
- 10 17. The method of claim 16, further comprising the step of:  
exhaling through a mouthpiece during delivery of substance.
18. The method of claim 17, wherein substance is delivered in a gas flow.
- 15 19. The method of claim 18, wherein the gas flow is an air flow developed by an exhalation breath of the subject.
20. The method of claim 18, wherein the gas flow is a gas flow separate to an exhalation breath of the subject.
- 20 21. The method of any of claims 18 to 20, wherein substance is delivered alternately to the nosepiece units and the other of the nosepiece units is vented, such that, where the gas flow is at a driving pressure which is such as to cause the gas flow to flow around the posterior margin of the nasal septum and through the nasal  
25 airway, the gas flow delivered through the one nosepiece unit is vented through the other nosepiece unit.
22. The method of claim 21, wherein the gas flow is vented through a flow resistor.
- 30 23. The method of claim 22, wherein the flow resistor has a fixed flow resistance and provides a fixed flow resistance to the gas flow.

26-04-2004

03717460

26/04 '04 17:03 FAX 01293 776837

FRY HEATH &amp; SPENCE

003/003

DT05 Rec'd PCT/PTO 28 SEP 2004

29

24. The method of claim 22, wherein the flow resistor is a progressive resistor which provides a progressively increasing flow resistance to the gas flow.
25. The method of claim 24, wherein the progressive resistor comprises an expandable member which provides a progressively increasing resistance to the gas flow.
26. The method of any of claims 16 to 25, wherein substance is supplied from a single substance supply unit.
27. The method of any of claims 16 to 25, wherein substance is supplied to the first and second nosepiece units from respective ones of first and second substance supply units.
28. A nasal delivery device for delivering substance to a nasal airway of a subject, comprising:  
a mouthpiece through which a subject in use exhales;  
at least one delivery unit for delivering substance to a nasal airway of the subject on exhalation by the subject; and  
a gas supply unit for cycling a pressure in the nasal airway of the subject on exhalation by the subject.
29. The delivery device of claim 28, wherein the gas supply unit is configured to provide an alternating pressure in the nasal airway of the subject.
30. The delivery device of claim 28 or 29, wherein the gas supply unit is an exhalation breath actuatable unit which is fluidly connected to the mouthpiece such as to be actuated on exhalation by the subject.
31. A method of delivering substance to a nasal airway of a subject, comprising the steps of:  
delivering substance to a nasal airway of a subject; and  
applying a varying pressure in the nasal airway of the subject.

20-12-2003 14:22 FAX 01293 776837

FRY HEATH &amp; SPENCE

03717460

30

32. The method of claim 31, wherein the step of applying a varying pressure in the nasal airway of the subject comprises the step of:  
cycling the pressure in the nasal airway of the subject.
- 5 33. The method of claim 32, wherein the step of applying a varying pressure in the nasal airway of the subject comprises the step of:  
alternating the pressure in the nasal airway of the subject.
- 10 34. The method of any of claims 31 to 33, further comprising the step of:  
exhaling through a mouthpiece during delivery of substance.
- 15 35. A nasal delivery device for delivering substance to a nasal airway of a subject, comprising:  
a mouthpiece through which a subject in use exhales;  
at least one delivery unit for delivering substance to a nasal airway of the subject;  
and  
a gas supply unit for alternately delivering and withdrawing a volume of gas through the nasal airway of the subject such as to cause entrained substance to be flushed in alternate directions therethrough.
- 20 36. A method of delivering substance to a nasal airway of a subject, comprising the steps of:  
delivering substance to a nasal airway of a subject; and  
alternately delivering and withdrawing a volume of gas through the nasal airway  
25 of the subject such as to cause entrained substance to be flushed in alternate directions therethrough.
- 30 37. The method of claim 36, further comprising the step of:  
exhaling through a mouthpiece during delivery of substance.
38. An interface member for attachment to a nasal delivery device, comprising, as an integral element, at least one nosepiece for fitting to a nostril of a subject and a mouthpiece through which the subject in use exhales, wherein the mouthpiece

AMENDED SHEET

20-12-2003 14:22 FAX 01293 776837

FRY HEATH &amp; SPENCE

03717460

AMENDED

31

includes a flexible member which is deflectable on exhalation into the mouthpiece.

- 5 39. The interface member of claim 38, comprising first and second nosepieces for fitting to respective nostrils of a subject.
40. The interface member of claim 38 or 39, where being a disposable element.
- 10 41. The interface member of any of claims 38 to 40, wherein the mouthpiece comprises a tubular section through which the subject in use exhales.
42. The interface member of any of claims 38 to 40, wherein the mouthpiece comprises a cavity into which the subject in use exhales, with a part of the cavity being defined by the flexible member.
- 15 43. The interface member of any of claims 38 to 42, wherein the flexible member comprises a resilient member.

AMENDED SHEET